Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

TITLE V DRAFT PERMIT NO. V-06-023
COVALENCE SPECIALTY ADHESIVES
FRANKLIN, KY 42134
DATE AUGUST 8, 2006
SAJJAD QUABILI, REVIEWER

SOURCE I.D. #:	21-213-00011
SOURCE A.I. #:	3975
ACTIVITY #:	APE20040003

SOURCE DESCRIPTION:
Covalence Specialty Adhesives manufactures wide variety of industrial tapes in several colors and widths with various backings near the city of Franklin in Simpson County, Kentucky. The first step in making the tapes is mixing rubber, zinc oxide, oil, clay and natural resins in mixers then further compounding the mixture on rolling mills. The adhesive is then calendered with a fabric substrate and plastic backing. The tape is slit to the desired width and wound onto rolls. Pollutants generated from these processes include particulates from resins grinding and the mixing operations.

Medical tapes, bandages, and wraps are also manufactured in this facility. Covalence makes several different types of each of these products with varying adhesive mixtures, substrate and backings.

REGULATORY HISTORY:

6/29/79 The Division adopted 401 KAR 61:120, Existing fabric, vinyl and paper surface coating operations. At that time Covalence was operating Line #1 emitting 1140 tons/per year and Line #2 emitting 380 tons per year of VOC emissions. Regulations 61:120 limited VOC emissions to not more than 15% of the net input to an affected facility, or allowed the company to reformulate their coatings and 3.8 lbs/gal coating less water for vinyl coatings.

11/1/79 Covalence proposed a bubble across the three coating lines in which the reduction in excess of the requirements for Spread lines #1 and #2 fabric coatings and Line #3 would offset VOC emissions in excess of the allowable for the Line Vinyl coating. The hourly average allowable for Spread line #3 is based on the 15% of the VOC input limit contained in 401 KAR 59:210, while the annual average allowable is established to maintain the increase in VOC emissions from the plant due to the addition of Spread line #3 at less than 40 tons per year to avoid PSD review. The bubble complied with the provisions of 401 KAR 51:055 and the EPA's emission trading policy (47 FR 5076, April 7, 1982).

4/21/80 The Division approved Covalence's control plan VOC.

12/29/80 Permit C-890-146 was issued to construct Spread line #3. Covalence reformulated the coatings for Line #1 and discontinued the use of all the VOC based coating on Line #2. To make up the lost production capacity, Covalence installed Spread line #3 in the year 1981 with a thermal incinerator.

5/14/84 Final determination made to approve operating permit along with the bubble incorporating with EPA's comments.

9/7/88 Permit C-88-164 was issued to construct five sterilizers A, B, C, D and E with the following conditions:

1. Ethylene oxide usage rate shall not exceed 1.88 lb/hr and 10,800 lb/yr.
2. Carboxide usage rate shall not exceed 2.92 lb/hr and 16,800 lb/yr.
3. The percentage of EtO shall not exceed 10%.
4. Ethylene oxide emissions shall not exceed 2.1 lb/hr and 6.05 ton/yr.

Note: the 1.88 lb/hr was later amended to 3.29 lb/hr by verbal approval from the Division.

9/22/88 Permit C-88-193 was issued to construct 11D Bandbury Mixer and relocate Coextrusion Tape Machine.

4/26/89 Permit C-89-081 was issued to construct Storage tanks.

8/20/90 Permit C-90-124 was issued to construct 3 polyethylene/EMAC chip extruder, 1 Bolling Mass Extruder and to reconstruct of a co-extrusion.

7/3/91 Permit C-91-071 was issued to construct bulk calcium system, hood/vent system for adhesive Bandbury Compounding System.

3/28/95 Permit C-95-068 was issued on to construct the sixth sterilizer F. The maximum usage shall not exceed 1.31 lb/hr at the largest EtO sterilizer.

6/12/96 Permit C-96-204 was issued to construct/operate additional two Lightning mixers (EP 65) and Spread line #5 (EP 82) with a thermal incinerator. 401 KAR59:210, new fabric, vinyl and paper surface coating operations apply to the line #5. The required reduction of VOC emissions was 85% by weight of the VOC net input into the affected facility.

4/22/99 Permit S-99-036 was issued to construct/operate control equipment on emission point #66, a catalytic oxidizer, to comply with 40 CFR 63, Subpart O.

10/19/01 Permit VS-01-008 was issued to construct/operate Spread line #4.

01/04/05 Permit VS-05-005 was issued to construct a silicon release coating/printing line (EP97) and five Aztek hot melt adhesive coating lines (EP 98). Construction of EP 97 has not been commenced. This emission point is not added to the Title V permit.

COMMENTS:

Covalence is a major source for criteria and hazardous air pollutants and is currently permitted to operate under various air permits. The Division received an application for a Title V permit for the source on December 19, 1999.

EP 01, 02 , 03 and EP 04, Cleaver Brooks Boilers:

These are four natural gas fired Cleaver Brooks boilers with a rated capacity of 8.375 mmBtu/hr each. The secondary fuel for these boilers is number two fuel oil. The boilers (EP 01, EP 02 and EP 03) were installed in 1962. Rated capacities of the boilers were combined (3X8.375=25.1 mmBTU) to calculate the limits for particulate and sulfur dioxide. EP 04 was installed in 1976. The rated capacity of this boiler combined with predecessor (25.1+8.37=33.5 mmBTU) to calculate the limits for particulate and sulfur dioxide. Applicable regulations for these emission points are as follow:

1. 401 KAR 61:015 for existing indirect heat exchangers which were commenced before April 9, 1972 (EP 01, EP 02 and EP 03).

2. 401 KAR 59:015 for existing indirect heat exchangers which were commenced after April 9, 1972 (EP 04).

3. 40 CFR Part 63, Subpart DDDDD National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial and Institutional Boilers and Process Heaters. All the four boilers are classified as small gaseous fuel units. No records or reports are required for existing small units (≤10 mmBtu/hr).

EP 95 Flexographic Printers (4)

EP 95 consists of three 6" narrow width offset printers and a 12" narrow width a Flexographic printer. These printers were constructed in 2001. The applicable regulations are as follow:

1. 401 KAR 59:212 New Graphic Arts Facilities Using Rotogravure and Flexography, applicable to each affected facility commenced on or after February 4, 1981. The permittee opted for an exemption from this standard by utilizing a waterborne ink whose volatile portion consists of seventy-five (75) volume per cent water and twenty-five (25) volume per cent organic solvent (or lower VOC content) in all printing units.

2. 40 CFR 63, Subpart KK, National Emission Standards for the Printing and Publishing Industry**.** Covalence chose to demonstrate that each ink, coating, adhesive, solvent, and other material applied during the month contains no more than 0.04 weight-fraction organic HAP, on an as-purchased basis, as determined in accordance with §63.827(b)(2)(i).

EP 12 Spreadline #3:

This emission point includes mixers, spread line, natural gas fired thermal oxidizer (27 mmBtu/hr), substrate unwind, primer booth enclosure, coater booth enclosure, natural gas fired with heat input of 10 MMBtu/hr and a tape rewind station. The spreadline was constructed in 1995.

At the time of promulgation of 401 KAR 61:120 in 1979, Covalence's two existing Spread lines #1 and #2 were emitting 1520 tpy of VOC. That regulation required that emissions be reduced by 85% by December 1981. Hence, allowable emissions from lines 1 and 2 were about 228 tpy, plus the 40 tpy increase from line 3 (to avoid PSD review), for a total allowable 268 tpy. This total allowable was distributed among each coating line arbitrarily in a bubble. The emission from Spreadline #3 was set to 37 tpy. Covalence reformulated the coatings for Line #1 and discontinued the use of all the VOC based coating on Line #2. Spread line #3 was installed in 1981 with a thermal oxidizer. Permanent total enclosure was installed later on to capture VOCs in line 3.

Lightnin mixers were added to the source as separate emission point in 1984 and in 1986. A single

emission point has been assigned for Spreadline #3 and for the mixers in this permit. 85% and 15% split in the product usage in the mixers is assumed for Spreadlines #3 and #5. So, uncontrolled emission for this emission point is 85% of the PTE of the mixer room. The combined PTE for uncontrolled (19.46 tpy) and controlled (37 tpy) VOC emissions for this emission point is 56.46 tpy. Covalence must comply with 401 KAR 59:210, Section 3, VOC emissions not greater than 15% of the VOC net input. Covalence shall also add uncontrolled VOC emissions from the Lightnin Mixers and Day Mixers to controlled emission from the spreadline to calculate actual emission rates. Compliance with combustion chamber temperature of the control equipment shall be monitored continuously. Applicable regulations for this spread line are as follow:

1. 401 KAR 59:210, New fabric, vinyl and paper surface operations, applicable to each affected facility commenced on or after June 29, 1979. The discharge into the atmosphere must not be more than fifteen (15) percent by weight of the VOCs net input into the affected facility. Compliance may be demonstrated by the material balance equations listed in the permit.

2. 40 CFR 60, Subpart RR, Standards of Performance for Pressure Sensitive Tape and Label Surface Coating Operations. Covalence shall demonstrate overall VOC emission reduction as calculated over a calendar month of achieving a VOC discharge into the atmosphere from an affected facility not more than 0.2 lb VOC/lb of coating solids applied.

3. 40 CFR 63: Subpart JJJJ- National Emission Standard for Hazardous Air Pollutants: paper and other web coating. Covalence chose to limit organic HAP emissions to no more than 4 percent of the mass of coating materials applied for each month at existing affected sources per §63.3320(b)(2). The affected source subject to this subpart is the collection of all web coating lines at the entire facility (§63.3300).

The source has chosen alternate operation scenario of §63.3320(b)(1). This section requires use of multiple capture and control devices including intermittently controlled work stations and uncontrolled lines to reduce emissions to no more than the allowable limit of 5 percent of the organic HAP applied for each month (95% reduction)(§63.3320(b)(1)).

EP 82 Spreadline #5

This emission point includes mixers, spread line, natural gas fired thermal oxidizer (15) mmBtu/hr), substrate unwind, primer booth enclosure, coater booth enclosure, natural gas fired with heat input of 25.2 mmBtu/hr and a tape rewind station. The spreadline was constructed in 1995. Covalence became major source for VOC emissions with the addition of this line. 401 KAR 59:210 requires a reduction of 85% by weight of the VOC net input in to the affected facility. Allowable VOC emission limit for Spreadline #5 is 77.2 tpy.

Lightnin mixers were added to the source as separate emission point in 1984 and in 1986. A single emission point has been assigned for Spreadline #5 and the mixers in this permit. 85% and 15% split in the product usage in the mixers is assumed for Spreadlines #3 and #5. So, uncontrolled emission for this emission point is 15% of the PTE of the mixer room. The combined PTE for uncontrolled (3.44 tpy) and controlled (77.2 tpy) VOC emissions of this emission point is 80.64 tpy.

Covalence must comply with 401 KAR 59:210, Section 3, VOC emissions not greater than 15% of the VOC net input. Covalence shall add uncontrolled VOC emissions from the Lightnin Mixers and Day Mixers to controlled emissions from the spreadline to calculate actual emission rate. Compliance with combustion chamber temperature of the control equipment shall be monitored continuously. Permanent total enclosure was installed to capture emissions. Compliance with

combustion chamber temperature of the control equipment shall be monitored continuously. Applicable regulations for this spread line are as follow:

1. 401 KAR 59:210, New fabric, vinyl and paper surface operations, applicable to each affected facility commenced on or after June 29, 1979. The discharge into the atmosphere must not me more than fifteen (15) percent by weight of the VOCs net input into the affected facility. Compliance may be demonstrated by the material balance equations listed in the permit.

2. 40 CFR 60, Subpart RR, Standards of Performance for Pressure Sensitive Tape and Label Surface Coating Operations. Covalence shall demonstrate overall VOC emission reduction as calculated over a calendar month of achieving a VOC discharge into the atmosphere from an affected facility not more than 0.2 lb VOC/lb of coating solids applied.

3. 40 CFR 63: Subpart JJJJ- National Emission Standard for Hazardous Air Pollutants: paper and other web coating. Covalence chose to limit organic HAP emissions to no more than 4 percent of the mass of coating materials applied for each month at existing affected sources per §63.3320(b)(2). The affected source subject to this subpart is the collection of all web coating lines at the entire facility (§63.3300).

   The source has chosen alternate operation scenario of §63.3320(b)(1). This section requires use of multiple capture and control devices including intermittently controlled work stations and uncontrolled lines to reduce emissions to no more than the allowable limit of 5 percent of the organic HAP applied for each month (95% reduction)(§63.3320(b)(1)).

EP 58 Adhesive MEU Line, EP 94 Hot Melt Feed System and EP 98 Aztek Hot Melt Adhesive Coating Lines (5):

The applicable regulations for these units are as follow:

1. 401 KAR 59:210, New fabric, vinyl and paper surface coating operations applicable to each affected facility commenced on or after June 29, 1979. Covalence opted for exemption from the standard utilizing coatings with VOC content of less 2.9 lb/gal, excluding water or exempt solvent or both, delivered to the applicators associated with the coating line.

2. 40 CFR 60, Subpart RR, Standards of Performance for Pressure Sensitive Tape and Label Surface Coating Operations. Covalence chose to demonstrate that any affected facility which inputs to the coating process 50 tons of VOC or less per 12 month period is not subject to the emission limits of §60.442(a), however, the affected facility is subject to the requirements of all other applicable sections of this subpart.

3. 40 CFR 63: Subpart JJJJ- National Emission Standard for Hazardous Air Pollutants: paper and other web coating. Covalence chose to limit organic HAP emissions to no more than 4 percent of the mass of coating materials applied for each month at existing affected sources per §63.3320(b)(2). The affected source subject to this subpart is the collection of all web coating lines at the source (§63.3300).

The source has chosen alternate operation scenario of §63.3320(b)(1). This section requires use of multiple capture and control devices including intermittently controlled work stations and uncontrolled lines to reduce emissions to no more than the allowable limit of 5 percent of the organic HAP applied for each month (95% reduction)(§63.3320(b)(1)).

EP 44, EP 45, EP 52, EP 55, EP 56, EP 61, EP 62 and EP 83 Calenders, EP 37 Cast Film Line and EP 56 Polyken Extrusion Line:

These are small extrusion lines that use no coatings with VOC and HAP constituents, but are part of the affected source for 40 CFR 63, Subpart JJJJ, Paper and Other Web Coating MACT. This subpart is the collection of all web coating lines at the source (§63.3300).

EP 30 Nauta Primer Mixer/Condenser, EP 31 Primer Fill and Transfer Operations and EP 32 Primer Storage Tanks:

APPLICABLE REGULATIONS:

40 CFR 63: Subpart HHHHH, *National Emission Standard for Hazardous Air Pollutants*.

Emission points (EP 30, EP 31 and EP 32) met the definition of affected source pursuant to 40 CFR 63.7985(b), for the miscellaneous coating manufacturing operations at the Covalence facility. These emission points include a process vessel, transfer operations, storage tanks for products, and equipment leaks from components such as pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, and instrumentation systems in organic HAP service. Compliance date for 40 CFR subpart HHHHH is December 11, 2006. Each point listed in the group requirements is an existing affected source.

EP 66 (66) Six Ethylene Oxide Sterilizers:

The ethylene oxide sterilizers are designated A through F. The control equipment is a 4000 SCFM EtO-Abator catalytic oxidizer. The unit uses a heat recovery system and steam coils (maximum rated steam consumption of 2,000 lbs/hr) to preheat air and the sterilizer EtO polluted stream. Once at or above the minimum reaction temperature, the catalyst initiates an exothermic reaction which converts EtO into carbon dioxide and water vapor. The manufacturer guarantees that 99% of the EtO entering the oxidizer will be destroyed as long as the EtO concentration entering the oxidizer doesn't exceed 3,000 ppmv (1.3 lbs/min). Sterilizers A through E were installed in 1988 and Sterilizer F was installed in 1999.

401 KAR 63:360, which incorporates by reference 40 **CFR 63, Subpart O**, Ethylene oxide (EtO) emissions standards for sterilization facilities is applicable to all sterilization sources with standards that apply to sterilization chamber vents at sources that use >1 ton and <10 tons of EtO, and sterilization chamber vents and aeration room vents at sources that use >10 tons of EtO (Alternate Operating Scenario for the permittee). Compliance with the temperature of the ETO room shall be monitored continuously.

Performence Test:

Covalence will under go a performance test per requirements of 401 KAR 59:210 and 40 CFR 60, Subpart RR for the thermal oxidizer after the issuance of the permit to verify the claims of destruction efficiency and the capture efficiency. Covalence will under go a performance test per requirements of 40 CFR 60, Subpart JJJJ for the thermal oxidizer if Covalence choose to operate by alternate operation scenario to verify the claims of destruction efficiency of HAP and the capture efficiency. Covalence also will perform test per requirements of 40 CFR 63, Subpart O to determine the destruction efficiency of EtO in the sterilization process.

Periodic Monitoring:

The division is requiring the source to keep daily records of usage of coatings and solvents at each of the spread line and other affected facilities and to summarize those records at the end of each month. The source shall also keep records of the monthly and twelve months rolling total for plant wide VOC, HAP and PM emissions.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.